

CHAPTER 1

ENVIRONMENTAL RESOURCES

BACKGROUND

Natural and environmental features are key elements that help define the character of Loudoun County and its diverse communities and landscapes. These features provide a framework for the built environment by potentially limiting development to certain areas while at the same time offering opportunities to enhance community character. Therefore, for reasons of health and safety, as well as design, the County seeks to manage its natural resources carefully. The Toll Road planning area includes a wealth of diverse environmental features that will influence community design and development.

WATER RESOURCES

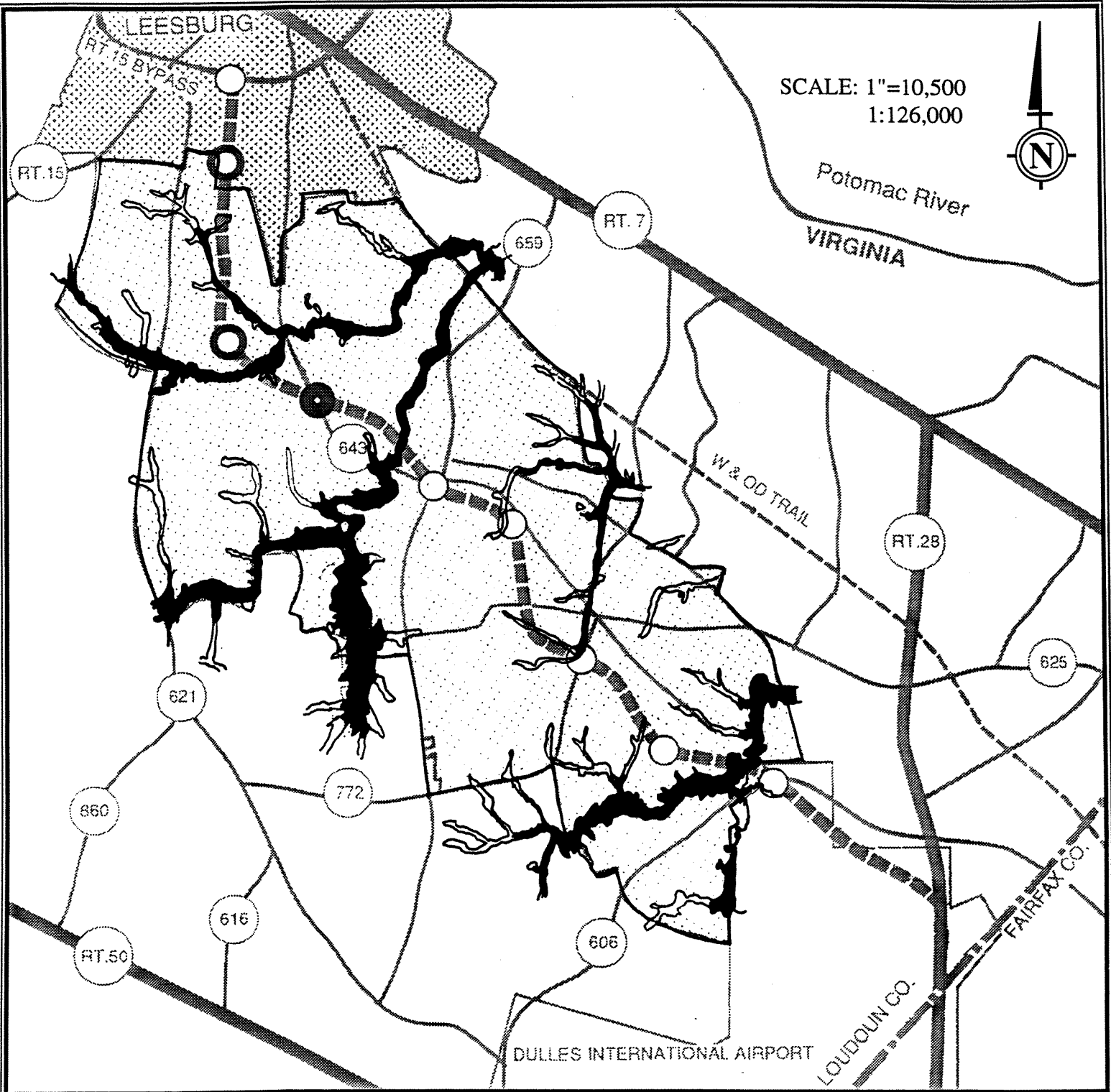
The Toll Road planning area lies within the Goose Creek and Broad Run subwatersheds. The area generally north and west of Route 659 drains into Goose Creek directly or via Beaverdam, Sycolin or Tuscarora Creeks. The area south and east of Route 659 drains into Broad Run directly or via Beaverdam Run, Stallion Branch, Horsepen Run, or Indian Creek. In addition to these many streams, the planning area includes two existing water supply reservoirs in the Toll Road planning area: Goose Creek Reservoir and Beaverdam Reservoir. The Goose Creek and Beaverdam Creek Reservoirs are drinking water supplies for the City of Fairfax and the Loudoun County Sanitation Authority (LCSA).

Excluding the area within Dulles Airport and the Town of Leesburg, there are approximately 2,450 acres of floodplain in the Toll Road planning area. There are approximately 1,727 acres of major floodplain and 723 acres of minor floodplain. Major floodplain is located along the North, South, and main forks of Sycolin Creek, Goose Creek, Beaverdam Creek, Beaverdam Run and two unnamed tributaries, Broad Run, Stallion Branch, Horsepen Run, Indian Creek, and one unnamed tributary of Horsepen Run. Minor floodplain is located along unnamed tributaries that feed the major streams.

In addition to streams, reservoirs and associated floodplains, the National Wetlands Inventory maps show numerous wetlands in the Toll Road planning area. The wetlands are primarily associated with ponds and floodplain. Due to limitations in mapping, the maps do not identify all wetlands. The Loudoun County soils map shows approximately 4,280 acres of hydric soil in the Toll Road planning area. Hydric soils is one indication of the presence of wetlands. Some of the hydric soil areas may be classified as wetlands when studied in greater detail.

There will be hydrological changes as the Toll Road planning area develops. Urbanization of an undeveloped watershed has a profound effect on surface hydrology. Converting a watershed from woods and pasture to residential, suburban, and urban uses can double or

Toll Road Plan



Floodplain



Major Floodplain



Minor Floodplain

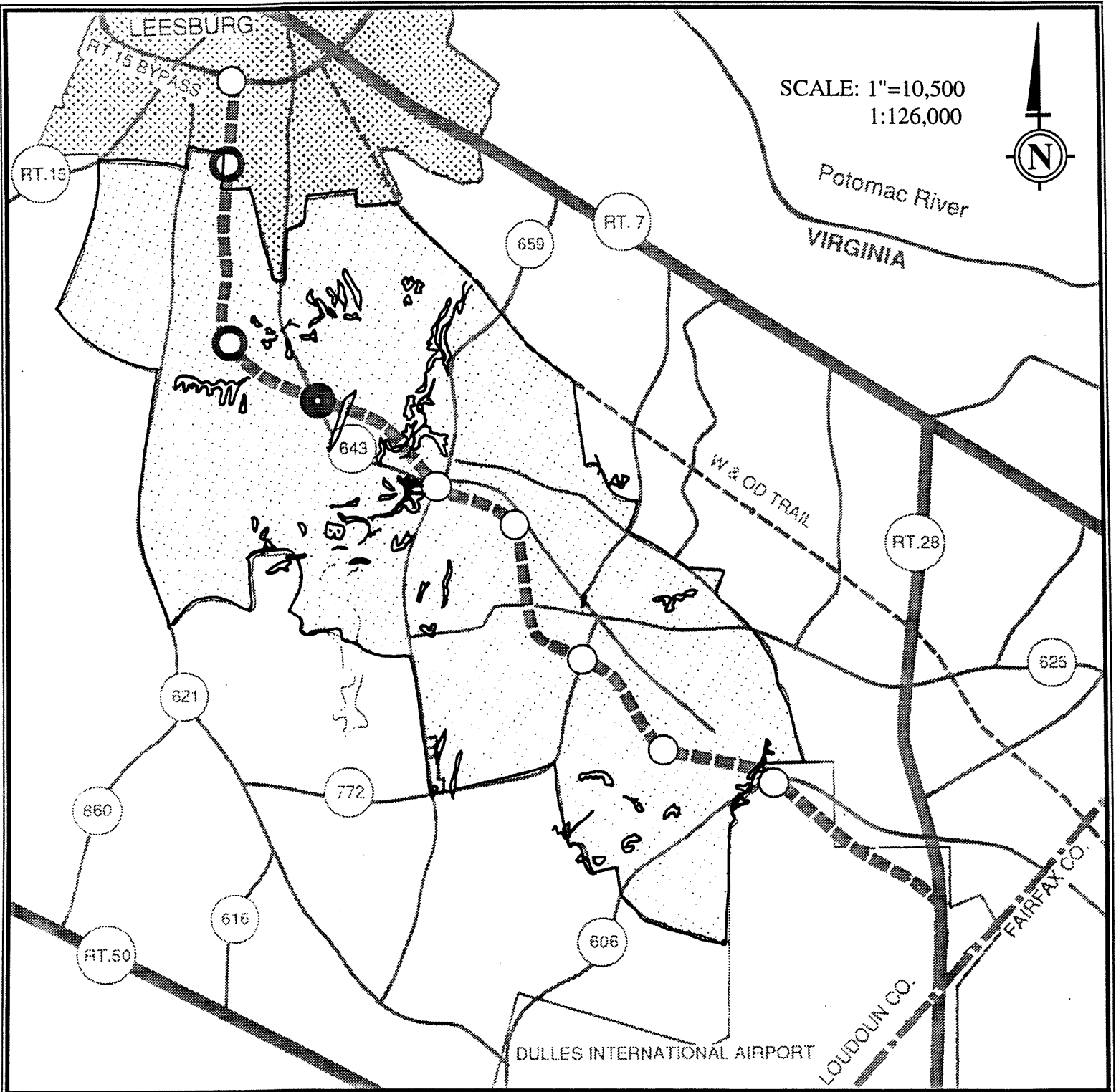
triple the volume and rate of surface runoff. Pavement and rooftops prevent rainfall from infiltrating into the ground while storm sewers and artificial channels accelerate the passage of runoff through the watershed. The results of uncontrolled urban runoff include sedimentation and erosion during construction, erosion of streambeds, increased flooding, and increased non-point source pollution. In addition, it is important to preserve natural floodplain areas in a vegetated, undeveloped state to prevent potential risks to lives and property and to protect the natural ability of a floodplain to filter and purify stormwater runoff.

To minimize the effects of development on water resources in the Toll Road planning area, the following policies are intended to support and enhance existing policies in the General Plan. Many of the water resources located in the Toll Road planning area are already protected by existing policies in the County's General Plan and Zoning Ordinance. In particular, the County supports the continuation of current policies protecting groundwater resources, floodplains, wetlands and water quality in the planning area. The policies in this plan seek particular protection for the Beaverdam and Goose Creek Reservoirs since these reservoirs provide drinking water to much of eastern Loudoun County, western Fairfax County, and the City of Fairfax.

POLICIES

1. Warehouse, manufacturing, industrial or other uses which generate, utilize, store, treat or dispose of solid, hazardous or toxic wastes or materials are prohibited in the Goose Creek or Beaverdam Creek Reservoir watersheds in accordance with State and Federal guidelines.
2. The County will require the use of Stormwater Management Best Management Practices (BMPs) in accordance with the Facilities Standards Manual (FSM) for all development in the Goose Creek and Beaverdam Creek Reservoir watersheds.
3. The County endorses the development and distribution of educational materials by the Soil and Water Conservation District, the Goose Creek Scenic River Advisory Board, and other agencies and private organizations concerning the protection of water quality for landowners in the Goose Creek and Beaverdam Creek Reservoir watersheds. The County encourages homeowners to properly store and use pesticides, fertilizers, and household hazardous materials.
4. The County will seek to preserve 100 year floodplains in their natural, vegetated condition. The County expects developers in the Goose Creek and Beaverdam Creek Reservoir watersheds to minimize floodplain disturbances and preserve or establish vegetated belts along stream channels.
5. The County will require a 300 foot vegetated buffer measured from the scar line around the Beaverdam Creek and Goose Creek Reservoirs in accordance with the General Plan.
6. The County will formulate a watershed protection plan by using a public and private group of citizens such as the Public Review Committee, which identifies what land

Toll Road Plan



Steep Slopes



Slopes 15% - 25%



Slopes greater than 25%

uses and density levels can be accommodated in the Goose Creek and Beaverdam Creek Reservoir watersheds without significantly degrading water quality in the reservoirs.

7. The County will depend upon State and Federal regulations to protect wetlands, including buffering and preservation.

VEGETATION AND WILDLIFE RESOURCES

The Toll Road planning area is characterized by three predominant land use types: suburban residential development, agricultural land and scattered forested areas. Agricultural land, stream valleys and forested areas support a variety of wildlife and plant life in the Toll Road planning area. As land use changes from predominantly forest and agriculture to more urban and suburban uses, large areas of wildlife and plant habitat will be lost and only the species that are most adaptable to survival in urban environments will remain.

There is one unusual habitat identified in the Toll Road planning area that supports a rare plant species. A diabase glade located on the west side of Goose Creek is considered to be "globally rare." The glade supports the unusual Trifolium virginicum ("Kate's Mountain Clover"). The Virginia Division of Natural Heritage estimates that there are only approximately twenty populations or occurrences of Kate's Mountain Clover in Virginia. The clover is a candidate for being listed on the State's threatened species list. The diabase glade is a natural resource that the Toll Road Plan suggests should be preserved through the County's Open Space Preservation Program.

The County must make special efforts to address the fragile balance between plant and wildlife habitat and development with policies that protect them. The policies in the Toll Road Plan seek to preserve and protect significant wildlife habitat by retaining food, water, cover, nesting and den sites in the planning area.

POLICIES

1. The County promotes the protection and creation of wildlife habitats by encouraging the incorporation of indigenous vegetation into the landscape design of new development in the Toll Road planning area.
2. The County promotes the preservation of existing vegetative cover and wildlife travel corridors (i.e., fence rows and stream valleys).
3. The County encourages that wildlife access to streams and other water sources be protected by preserving existing vegetation and by the planting of indigenous vegetation.
4. The County will encourage the study of uncommon wildlife species by qualified research organizations such as the Virginia Division of Natural Heritage (VDNH).

5. The County may depend upon State and Federal regulations to protect rare, unique or endangered wildlife species, and encourages the protection of rare, unique, and endangered species like the Trifolium virginicum (Kate's Mountain clover) by preserving the habitat in open space, passive recreation, or nature preserve areas.
6. The County will encourage a compact, concentrated development pattern in order to protect the County's vegetative and wildlife resources.

AIR QUALITY

Loudoun County is part of the Washington Metropolitan Statistical Area (MSA). The Washington MSA is classified as a "serious non-attainment" area for ground level ozone. Gasoline powered vehicles are the primary source of the volatile organic compounds (or hydrocarbons) that result in increased ozone in the Washington MSA. The Clean Air Act Amendments adopted by the Federal Government in 1990 require the Washington MSA to reduce ozone levels significantly by 1999. The County, by General Plan policy, supports the State's Implementation Program for compliance with the Federal Clean Air Act. New development in the Toll Road planning area will have an effect on air quality since the automobile is the primary means of transportation in the County. In an effort to minimize the impact of additional development on air quality in the Toll Road planning area, the County seeks to closely coordinate land use patterns with transportation facilities and improvements.

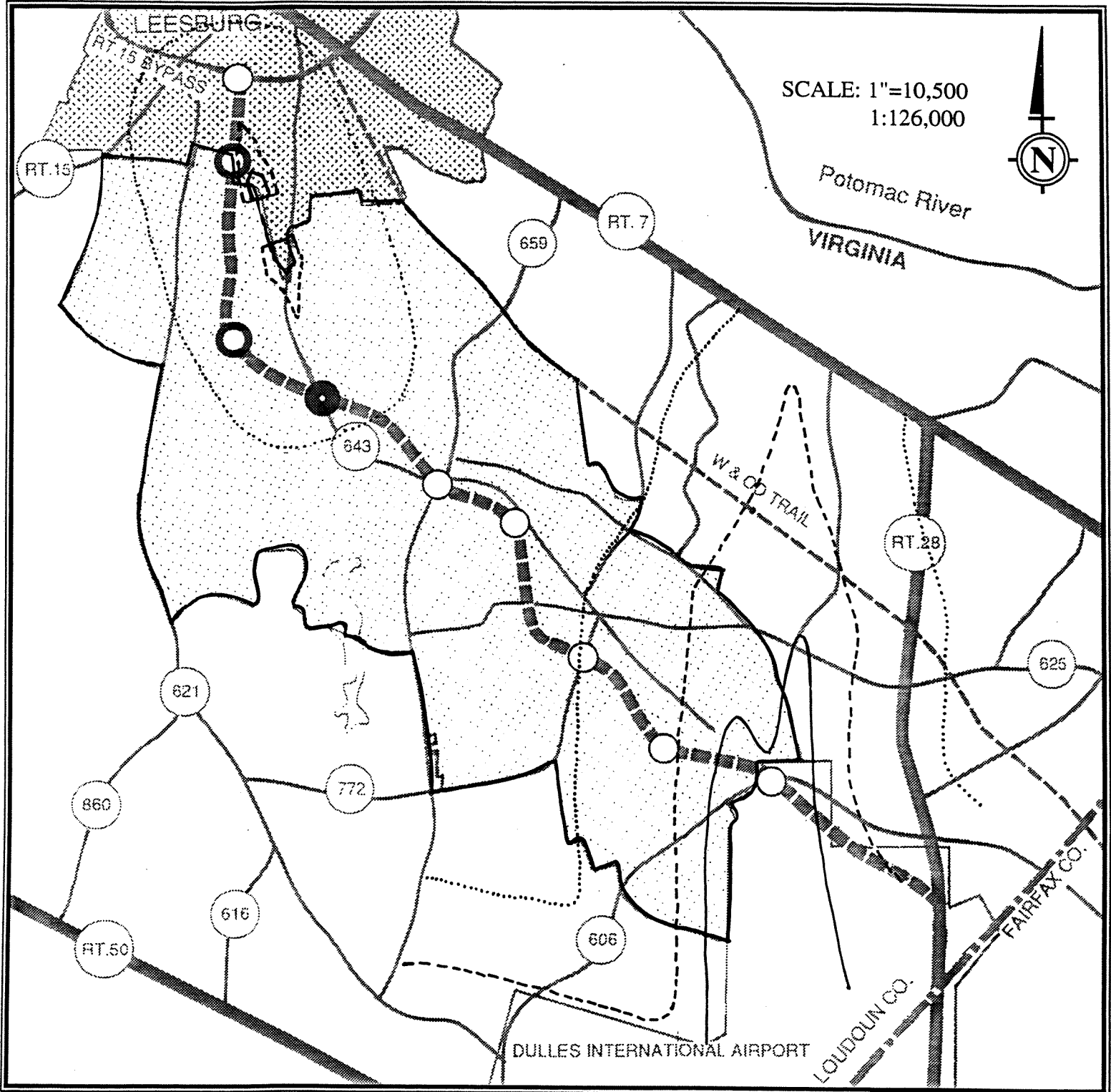
POLICIES

1. In order to improve regional and local air quality, the County will encourage reduced automobile pollution by various measures such as encouraging concentrated development with a mix of integrated land uses, providing for appropriate densities to support transit and the development of transit facilities and services, such as bus and rail service, bicycle/pedestrian trails, and ridesharing.
2. The County encourages employers to provide flexible work schedules to reduce vehicle emissions.
3. The County requires the construction of support facilities for transit and other commuter transfer connections. See Map X on page XX.
4. The County encourages the construction of bicycle and/or pedestrian travelways to employment and retail centers.
5. The County encourages the development of conveniently located elder/child care centers, including at transit centers.

AIRPORT AND HIGHWAY NOISE

The Toll Road Plan noise policies build on existing General Plan policies which seek to mitigate the negative effects of noise through a variety of mechanisms tailored to address the specific type of noise. The highway noise policies are aimed at reducing noise through

Toll Road Plan



Airport Noise Contours

Ldn 65 —————
 Ldn 60 - - - - -
 One mile boundary

noise absorption and attenuation techniques such as buffers, berms and landscaping. The policies also seek to minimize conflict by establishing a highway noise overlay zone that would establish setbacks and standards to reduce noise levels. In addition to specific noise attenuation standards that must be met by properties located within the County's airport overlay zones, the land use policies of the Toll Road plan support efforts to minimize conflicts between land uses by directing new residential development away from the airports.

POLICY

1. The County will amend the Zoning Ordinance to provide standards for highway noise mitigation in highway noise corridors for noise-sensitive uses, such as residences, schools, churches, hospitals, nursing homes, and parks.